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BULLETIN VII

LONGEVITY AND SANITATION

OTTAWA

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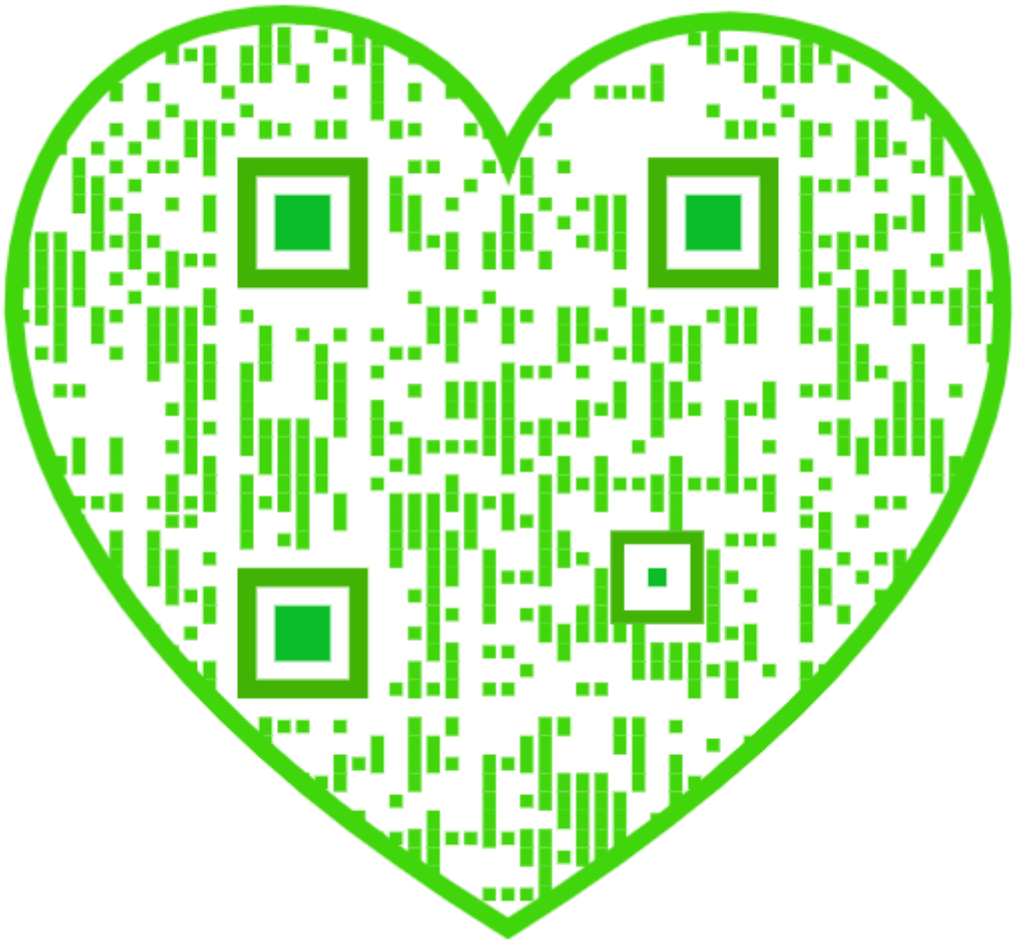

BULLETIN VIII

LONGEVITY AND SANITATION.

To the Honourable SYDNEY FISHER,

Minister of Agriculture.

Sir,—

I have the honour to submit herewith for publication as Bulletin VIII of the Census and Statistics Office papers which deal with the length of life and the health of the people of Canada. The first paper is the substance of an address at McMaster University Convocation in May, and the second was read at the annual meeting of the American Public Health Association held at Winnipeg in August of this year. They are kindred in subject, and the statistical data relating to longevity and sanitation in Canada are brought together here for the first time.

I have the honour to be,

Sir,

Your obedient servant,

ARCHIBALD BLUE.

Ottawa, September, 1908.

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LONGEVITY AND SANITATION.

What we learn at the schools is a small part of our education. Even when the University puts its hall mark upon us, or the agricultural college, or the medical school, or the law school, or the technical school, or the school of practical science, or the divinity hall, or the college for post-graduate work, there is a wide field to be explored before one has acquired the knowledge and the wisdom that fit him for a life of affairs. If there be a royal road to knowledge it lies in being taught how to learn, and how to care for the mind and the body. But art is long, and with the best of equipment success comes to most of us slowly. Often it never comes, and perhaps never without the natural helps of good sense and judgment.

The education for a life of affairs.

I. LONGEVITY OF THE PEOPLE.

There are a hundred things on the farm which no school or college will teach a man to do well. He may be told that a straight line is the shortest distance between two points, but this definition will not help him to turn a straight furrow. He must hold the plough in his own hands, and he will find that more is wanted for a straight furrow than holding the plough. This is just one thing of a hundred which after a practice of years he does as easily as a man can turn his wrist; and to do them all exactly well may use up as much grey matter as the course at college that wins for a young man his degree. Miners too will tell you that years of training are required for a man in every conceivable posture to hit a drill with a hammer and never miss a blow; and in the Cornish mines, where they have the best miners in the world, they will tell you that such a degree of accuracy is attainable only when the man begins as a boy of fourteen and keeps the work up day by day until he is at least twenty.

Practical training.

The University graduate who goes into business of any sort may succeed because he has a trained mind, but the probabilities are against him until he has gained the knowledge experience gives. As a merchant, or a railway man, or the manager of a

factory, or a commissioner, or an insurance or real estate or transportation agent, or as an editor of or writer for a newspaper, he takes great risks if he puts into the business his own money. Except perhaps as a theory, business knowledge is not taught in the schools.

Then there are such subjects as state and municipal politics, and temperance, education and religion in their relations to state and municipal governments. These are almost altogether new fields of exploitation for the college graduate, which as an educated man he should strive to understand. The man who does not take an interest in public affairs, a wise Greek said long ago, is an enemy of the state. No matter how good a course a young man may take in the arts and sciences as these are taught in the schools, he will find new subjects of greater human interest to investigate when he comes out into the world. And for the consideration of such a one I will say that I do not know a more pitiable object than the university president or professor who upon any question of human interest outside of the range of his own specialty speaks with the mind of a child.

New fields of exploitation.

One other subject I will mention, the fundamental secrets of which we cannot know well enough. I refer to the health of the people; and this is what I had in view a moment ago when I spoke of care for the mind and the body as one chief means of finding a royal road to knowledge. An illustration of the worth of this care has recently presented itself to me in a study of the question of old age pensions, which if only a footnote to the main question is in itself an example of the novel results we get out of figures if we are faithful to let them evolve their problem naturally, like the characters in a story.

Health of the people.

I knew that in England, where sanitary laws had been in operation for seventy years, the mean duration of life had been lengthened in many of the larger towns and in rural districts, and I recalled passages in the reports of Chadwick showing the wretched condition of London, where in the heart of Westminster the cellars of dwellings were reeking with fecal matter, and of the city of Aberdeen, where the streets of seventy years ago were pools of sewage emptied out with buckets at front doors, compared with which the midden heaps of villages in the East, where children played in the ashes by day and dogs and outcasts gnawed bones by night, were decency and sanitary safety.

English records.

I knew, too, that in Canada on occasions forty or fifty years ago, when outbreaks of cholera, small pox, scarlet fever and typhoid fever occurred, spasmodic efforts had been made to pump out old wells and clean up back yards, and I was sure that in these and other ways the death toll had been cut down even before the adoption of improved methods and the enforcement of better laws in some of the provinces twenty-five years ago. But figures in the large, which do not lie, I had not then examined or worked out, and I never had confidence in the mortality tables because I knew that the records from which they had been compiled were too imperfect for scientific use. Canadian records.

A census record taken for a year at the end of a year, and only once in ten years, is almost inevitably short, for the dead are so soon forgotten by the living; and even where the law requires registration as a condition on which burial permits are issued, it is far too often not regarded. At the last census of Canada special measures were taken to procure a full enumeration of deaths in the census year, and in Ontario and Quebec lists for help were put into the hands of enumerators of all deaths reported to the registrars of the provinces. In Ontario we have in operation one of the oldest and best of registration systems in America, yet when the Ontario and the Census records for the full census year came to be compared name by name it was discovered that there were 6,243 names in the former which were not in the latter, and 3,244 names in the latter which were not in the former. The corrected statistics compiled from the two records in Ontario are no doubt approximately complete for this province, hut they serve to show, what has already been intimated, that the records for the other provinces are far too imperfect for scientific use.

We may find better evidence in the records of the living, and the search for it will reveal on the whole a better state of things for the sanitation side of vital statistics. Such evidence is better because it is relatively more complete; the living are not so easily missed by an enumerator as the dead. Statistics of the living.

A comparison of the ages of the people shows that in 1871 the mean age of the living was 23·50 years. In 1881, when the next census under Confederation was taken, this mean had increased to 24·63 years. In 1891, at the third census, it was 25·73 years. In 1901, at the last census, it was 26·79 years. A little more than one year was added to the mean of ages in

the course of each decade, and at the end of thirty years the increase was 3·28 years. Put into another form, the aggregate age of all persons living in 1871 was 81,915,000 years, in 1881 it was 106,520,000 years, in 1891 it was 124,359,000 years, and in 1901 it was 143,898,000 years. This last aggregate for the Dominion is 17,618,000 years of life more than if the average age had stood where it was thirty years before, and it represents just so many years added to the strength and wealth of the Dominion in human life. Whence has this rich gift come? Not from the physicians, wise and skilful as they may be; and not from the theologians of any school new or old who teach the ways of Providence to men. It is, I have no doubt, a gift nature has bestowed on a people who have discovered and who submit to her laws. Pure air, pure water, pure food and a clean life are the conditions which make for longer life, a healthier one and a better one; and it is almost an axiom that a sane mind and a sound body go together.

Results of better sanitation.

Further evidence of the lengthening of the span of life may be found in a comparison of populations for groups of ages. Taking first for both sexes the group of persons 65 years and over in the Dominion, there were 364 out of every 10,000 in 1871, 413 in 1881, 459 in 1891 and 506 in 1901,—an increase of 142 for this group per 10,000 in thirty years. In the group of 15 to under 65 years, which is the productive period of life, there were 5,474 per 10,000 in 1871, 5,715 in 1881, 5,897 in 1891 and 6,038 in 1901,—an increase of 564 per 10,000 in thirty years. But for the group of under 15 years the number per 10,000 of the population fell from 4,162 in 1871 to 3,872 in 1881, to 3,644 in 1891 and to 3,456 in 1901,—a decrease of 706 in thirty years. There is no need to speculate on the cause of this decrease when it is seen that the number of children per 10,000 of the population under one year of age was 306 in 1871, 284 in 1881, 253 in 1891 and 247 in 1901.

Comparisons for groups of ages.

A last comparison is made for males of 15 to under 65 years, which is the wage-earning or producing period of life. The total number of persons in this group grew from 956,292 in 1871 to 1,652,990 in 1901, and the average age from 32·90 to 34·18 years. The rate per 10,000 of all ages was 5,422 in 1871 and 6,074 in 1901, which means that in thirty years the number from 15 to 65 years in every 10,000 of all ages

Effect on the wage-earning period.

increased by 652. Had the rate of 5,422 per 10,000, as it stood in 1871, continued throughout the period, the male population of this group would be only 1,475,836 instead of the actual number of 1,652,990 ; and so, as a consequence of the higher rate, there was an increase of 177,154 in the group of population from 15 to under 65 years from 1871 to 1901. This is the claim made on behalf of improved sanitation, which means besides less sickness and a lower death rate a more virile type of life. It means also a greater earning capacity of the people ; and assuming a moderate wage of $1 per day for 300 days, the measure of the increase due to the higher rate is $53,146,200 in the year. Therefore it may be affirmed with absolute assurance that good sanitation pays ; and with equal assurance it may be said that Canada is the last place in the world to commit a physician to gaol for reporting the outbreak of a dangerous disease in the country, as occurred a few weeks ago in a South American state when Dr. Gomez Peraza reported to his government the appearance of the terrible bubonic plague at the seaport of Laguayra.

The claim for better sanitation.

I would say one last word on sanitation concerning the city of Toronto, which is not one of the healthiest places in Canada. I have said that the mean age of the people in the Dominion was 23·50 years in 1871, 24·62 years in 1881, 25·72 years in 1891 and 26·78 years in 1901. Well, the mean age in Toronto was 24·24 years in 1871, 25·07 years in 1881, 26·08 years in 1891 and 28·04 years in 1901, which in view of every local circumstance and condition is a remarkably good showing for the men here who look after the health of the citizens, as well as for the citizens themselves who are wise to observe the regulations for better health.

Sanitation in Toronto.

We will not in any business or pursuit or work attain to the mark of the highest possible ; yet 'press forward' ought to be the motto of our lives. 'It may be absurd', Sir James Mackintosh said, 'to expect perfection : it is never absurd to pursue it'.

II. SANITATION IN A NEW COUNTRY.

We are here in a new country. Not quite forty years ago the territory out of which have been formed the provinces of Manitoba, Saskatchewan and Alberta became part of the Dominion

of Canada. For two hundred years it had been the hunting ground of a Company of Adventurers of England trading into Hudson Bay. It was a region wider in extent than the states of Michigan, Wisconsin, Minnesota, the two Dakotas, Montana and Washington, and when acquired by the Dominion in 1870 its white population was only 12,000. Manitoba received its name and a constitution in the same year, and what is now the city of Winnipeg was only a hamlet without a name. Saskatchewan and Alberta became provinces three years ago, and when the census of the three provinces was taken two years ago the population was 808,863.

In the Northwest provinces.

It is a new and large country, and although two years ago it had 8,328,000 acres in field crops, this is only one forty-third part of the whole extent of the land. Here ought to be virgin ground for the sanitarian, and if he can advise the people how to begin right and to keep on in the right way he will be blessed of all generations who come after. For this may safely be premised, that without regulations founded on a large experience no community will live and act wisely in the relations which make for health of body and mind.

Concrete cases in sanitation.

Taking a concrete instance, there is a progressive town in one of these provinces where the supply of good water ran short a few years ago, and to supplement it the main service pipe was connected with a river which received the sewage of the town. But—would Credulity believe it—the intake pipe for water was laid in the stream below an outlet for sewage! Soon after there was typhoid fever in that town. There were many cases, and a number of deaths, and much wonder as to the origin of the outbreak. At last an expert sanitarian was called in, and what the nose of a ploughman might have detected he located with the instinct of a sleuth. It was no trick, you experts will say. An Indian holy man might have done it, if you can conceive of an Indian holy man—as he wades and washes and laps water in his village pond in companionship with the sacred bull—entertaining the suspicion that sewage in potable water is a foul or an evil thing. But I am told that to this day many residents of that unmentionable town in a Northwest province of Canada refuse to believe that sewage charged into the water in the way I have indicated was in the remotest degree the source of the fever. It was just Providence, they will say, whose path is as trackless and mysterious as the way of an eagle in the air or of a serpent on the rock.

We learn the laws of health slowly, even in the oldest lands, in the highest civilizations, and under the best systems of organization, and I suspect that where public health associations have done their best work there is yet a studied indifference if not a contempt for their acts and schemes and precepts.

Just now a town on the Quebec side of the Ottawa river, a few miles above the capital city of the Dominion, is constructing a system of drains for pouring its sewage into the river from which the cities of Ottawa and Hull receive their water supply, and although sanitarians and engineers of the highest standing and authority have protested against it, there does not appear to be a strong enough or an interested enough force of public opinion in an urban population of 100,000 to stop the vile outrage.

This Public Health Association is an educative body, with thirty-five years of good work behind it, and one of the chief purposes of its meetings is to create a public opinion for the promotion of health reform. Therefore we welcome you to this new country—to this heir of the twentieth century—and if you can teach us how to live longer and stronger, we shall be grateful. This year we are harvesting about 100,000,000 bushels of wheat, and when we are growing a billion bushels—which we can do and have more than 300,000,000 acres remaining for other uses—we shall have in these three provinces 10,000,000 of people to train up in the laws of good living, and like an elect people of old to thank God that he has set their feet in a large place and that he fills them with the finest of the wheat.

Public health reform for a promising country.

For clearer perception of a problem I want to put before you, I will make a rough analysis of the people of this promiseful country. I will tell you something of the number, the sexes, families and conjugal condition of this people, of their nativities, ages and general lines of life as occupants of town or country homes, so that you may be helped in counselling what to do for them before they grow to be millions.

Comparative figures are best, and I will use those of the censuses of 1901 and 1906, a period of five years.

The growth of population in this period was from 419,512 to 808,863, which is an increase in five years of 389,351 or 92·81 per cent. The number of families grew from 86,596 with 228,954 males and 190,558 females to 180,312 families with 466,257 males and 342,606 females. Putting this comparison into

Comparative figures.

another form, married males grew from 72,080 to 144,949, married females from 69,795 to 132,745, single males from 152,413 to 313,214, single females from 114,064 to 198,520, widowed males from 4,430 to 7,934, widowed females from 6,667 to 11,244, divorced males from 31 to 160 and divorced females from 32 to 97.

Population and sex.

The striking feature in these figures is the preponderance of males, but it is a thing to be looked for in a new and far-off country, where pluck and endurance count, and are indeed essential. The number of families increased from 1901 to 1906 by 108, the number of males by 103 and the number of females by only 80 per cent, and while in the first year of the period females were to males as 100 to 120, they were in the last year only as 100 to 136. The married males in 1901 exceeded the married females by 2,285, which however is an indication that these were pioneers who had gone forward to prepare the way. In 1906 the excess had grown to 12,204, a number borne upward by the tide of immigration. So also in the case of single males, the number increased in the period by 160,801, while single females increased only by 84,456. Time will no doubt adjust these differences as fast as provision can be made for homes in new communities. Concerning the widowed class, the data at hand do not enable one to say why females should so largely outnumber males, for the census of 1906 did not take a record of mortality. Perhaps one may say that it is an inviting country for widows. But as an exemplification of the morals of the people, we may refer with a measure of pride to the statistics of the divorced ones in the provinces, which numbered 257 in 1906 out of a population of 808,863 as compared with, say, 4,842 in Michigan out of a population of 2,421,000 in 1900.

Nativities of the people.

The nativities of the people show that in 1906 almost 55 per cent were born in Canada and 45 per cent elsewhere, as compared with 66 and 34 per cent respectively in 1901. The number in 1906 born within the British Empire was 567,928, in the United States 90,738 and elsewhere 150,197. This makes the total of British and American born 658,666 or 81·43 per cent of the whole, leaving 150,197 or 18·57 per cent as born elsewhere. These last include 58,546 from Austria-Hungary, 3,581 from Belgium and Holland, 4,925 from France, 14,191 from Germany, 34,104 from Russia, 24,129 from Scandinavia and 20,721

from other countries. Grouped by ages, 15,454 of the foreign born were under five years, 30,343 were five to under 10 years, 66,179 were under 20 years, and 251,290 were 20 years and over. Austria-Hungary has given us the Galicians and Russia the Doukobors, who are splendid types of men and women physically, industrially and morally. In the city of Winnipeg, which in 1906 had a population of 90,153, the foreign born numbered 45,546.

The large addition to the population of the provinces during the five years by migrants from other provinces and by immigrants from other countries, together with the undue proportion of males in that period, disturb any fair comparison of ratios of ages and sexes for the two years. For example, the living children under one year of age in 1901 were nearly 29 per 1,000 of the population, and in 1906 they were only 22 per 1,000. Under 15 years of age the sexes compare closely in relative numbers, but over that age they are widely discrepant. Taking the age groups from 15 to under 45, there were 112,724 males in 1901 and 86,209 females or in the proportion of 1 to 0·76, and in 1906 there were 259,780 males and 163,908 females or as 1 to 0·63. And these are the years of reproduction. But the fact that 701,362 in 1906 or 87 per cent of the whole population of 808,863 were under 45 years of age, shows that these three provinces are a young people's country. In Ontario the number under 45 years in 1901 constituted only 78 per cent of the whole, which left 22 per cent there over 45 years as compared with only 13 per cent in the three provinces. But this is a time in those provinces when as regards the sex and age of the people conditions are out of joint.

Disturbance of ratios.

There is also a period of change in the provinces in the relations of town life and country life. In 1901 there were 85 cities, towns and villages with a population of 103,691, and in 1906 there were 185 with a population of 244,585. The number of townships and other rural areas in 1901 was 2,499 with a population of 315,821, and in 1906 there were 4,537 with a population of 564,278. In the towns the increase was 140,894 or 136 per cent, and in the townships it was 248,457 or 78 per cent.

Town life and country life.

Such are the people of these three provinces as shown by the relations of census figures. They live and move and have their being much the same as men and women elsewhere, but I think more strenuously than most of us whose homes are below the 49th parallel. They speak to us of 'slow old Ontario' with a

Men of the northern zone.

pleasing complacency that provokes a smile; and we say it is the air, or the ozone in the air that rises in the bosom of man like a dry champagne, and gives wings to the imagination of Hodge in the wheatfield and of Ledger in his counting room. But whatever the secret may be, they are nearer to the arctic circle than we are, and have longer hours to work in summer and to rest in winter. It is a fact that plants grow in the light of the sun, and in the four months of May, June, July and August there are 1,904 hours of sunshine at the experimental farm at Brandon and only 1,840 hours at the experimental farm at Ottawa. On the other hand there are in the months of November, December, January and February 1,134 hours of sunshine at Ottawa and only 1,077 hours at Brandon.

Man is largely a creature of climate and time, and in this new country we are only beginning to learn his conditions and to see how he is being influenced. How can we help him, or how can he help himself, to fit in with his environment?

'When would you begin to train a child?' a mother asked Dr. Oliver Wendell Holmes; and he answered like a philosopher, 'A hundred years before the child was born.'

A need for better vital statistics.

Records of vital statistics must be a help of incalculable value to a study of the problem of the sanitation of a new country. But the scope of them, the thoroughness of them and the uniformity of them are essential considerations. I would make investigation as thorough in the country as in the town; and the best plan which the genius of experts can devise having been matured, I would make the observance of its requirements a duty laid upon every man as binding as his highest obligations to the state and as sacred as his religion.

An economic view of sanitation.

To lengthen the lives of the people through the observance of sanitary laws and regulations is worth a great effort, even in an economic sense. In the United Kingdom the average life of all the people has been extended by five years within the last seventy years, and we may conceive it as easily possible in one decade to add at least one year to the average of the life of the men and women of Canada between the ages of 20 and 45 years. Assume this much to be gained, and assume the average earnings of males to be $300 and of females $150 in a year of 300 days, it makes, computed on our population and mortality of 1901, an increased earnings of $3,550,000, which in ten years is $35,500,000, plus a year of life for every man and woman 20 to 45 years of age.